United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS

NGDC Activities
National Geospatial Development Center

Southern Regional Cooperative Soil Survey Conference
July 15, 2008

Sharon W. Waltman, USDA-NRCS
Soil Scientist-Spatial Data Analyst
National Geospatial Development Center
Morgantown, WV

United States Department of Agriculture
Natural Resources Conservation Service

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NGDC Activities
National Geospatial Development Center

West Virginia University Web Page - http://www.ngdc.wvu.edu/
(still under construction in some areas)


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NRCS
NATIONAL GEOSPATIAL DEVELOPMENT CENTER
The NGDC is a collaboration between the NRCS and WVU.
Home
About the NGDC
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Software
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WELCOME
The National Geospatial Development Center (NGDC) supports the natural resource business needs of the USDA Natural Resources Conservation Service through the innovative use of GIS and other technology tools. We are responsible for the use, application, and integration of geo-technology tools to support and expand the efficient delivery of NRCS programs, with an emphasis on resource inventory and mapping activities. The center works closely with NRCS staff at field, state, and national offices, other federal agencies, university researchers, and the private sector to achieve these goals.
The NGDC was established in 2004 by congressional earmark as a collaboration of the NRCS and West Virginia University (WVU). We are located on the WVU campus in downtown Morgantown. Our personnel include NRCS and WVU staff, contractors, and WVU undergraduate and graduate students.
NEWS
Discussions
Discussions not available on http://www.ngdc.wvu.edu/
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NGDC Activities
National Geospatial Development Center

Projects

National Soil Geospatial Database (Transact-NSGD with Check Out/Check In functionality)

Research/Development

Soil Resource Inventory Tool Box

- Digital Editing
- Point Data Collection (PedonPC, PC, Analysis , University Lab Data)

Digital Soil Mapping (DSM – Predictive Soil Mapping Methods)

Historical Replica Development (Soil Survey Scanning) 235/877

Research – CESU (Cooperative Ecological Study Units)

- http://www.ngdc.wvu.edu/research/CESU

The NGDC is a collaboration between the NRCS and WVU.

CESU Projects

External research projects funded through the CESU National Network are listed alphabetically by research area. Project descriptions and final reports will be available soon.

Digital Soil Mapping Applications
Digital Soil Mapping Software and Training
Dynamic (Use-Dependent) Soil Properties
Hydropedology / Use and Visualization of Soil Data

DIGITAL SOIL MAPPING APPLICATIONS

Advancing the Soil Map Analysis Program (SoilMAP) for Soil Survey
Dr. Jay Noller, Department of Crop and Soil Science, Oregon State University, 2006-2008.

Assessment of SoLIM Predictions of Soil Series and Depths to the Phosphorous-enriched Roundtree Formation over a Landscape Continuum
Drs. A-Xing Zhu and Jim Burt, Department of Geography, and Dr. Cynthia Stiles, Department of Soil Science, University of Wisconsin-Madison, 2005-2007.

Development of the Remote Area Soil Proxy Modeling Technique
Dr. Bruce Frazier, Department of Crop and Soil Sciences, Washington State University, 2006-2008.

Development of the Remote Area Soil Proxy Modeling Technique
Dr. Bruce Frazier, Department of Crop and Soil Sciences, Washington State University, 2006-2008.

Digital Soil Mapping of Soil-Landscape Relationships and Soil Taxonomy in Organ Pipe National Monument, Arizona
Dr. Craig Rasmussen, Department of Soil, Water, and Environmental Science, University of Arizona, 2006-2008.

Digital Soil Mapping Operational Initiative – Mojave Desert Region
Dr. John Galbraith, Department of Crop and Soil Environmental Sciences, and Dr. Randy Wynne, Department of Forestry, Virginia Tech, 2007-2008.

Digitally-based Soil Phosphorus Enrichment Hazard Map
Dr. Cynthia Stiles, Department of Soil Science, University of Wisconsin-Madison, 2005-2006.

Enhancing the Pedogenic Understanding Raster Classification (PURC) Methodology and Maps: Arches, ASTER, and Attitudes
Dr. Janis Boettinger, Plant, Soils and Biometeorology Department, Utah State University, 2006-2008.

Multi-scale Terrain Analysis to Improve Soil Survey
Dr. Jim Thompson, Division of Plant and Soil Sciences, West Virginia University, 2005-2007.

Quantifying Basalt Rock Outcrop in NRCS Soil Map Units Using Landsat-5 Data
Dr. Nancy Glenn, Department of Geosciences, Idaho State University, 2007-2008.

Remote Sensing Supported Digital Soil Mapping in South Florida
Dr. Sabine Grunwald, Soil and Water Science Department, University of Florida, 2007-2008.

DIGITAL SOIL MAPPING SOFTWARE AND TRAINING

Business Requirements for a Digital Soil Mapping Software
Drs. A-Xing Zhu and Jim Burt, Department of Geography, University of Wisconsin-Madison, 2006-2007.

Development of an NRCS/NEDC-sponsored course: Remote Sensing for Soil Survey Applications
Dr. Janis Boettinger, Plant, Soils and Biometeorology Department, Utah State University, 2006-2007 (Joint project with West Virginia University and NRCS).

Development of an NRCS/NEDC-sponsored course: Remote Sensing for Soil Survey Applications
Dr. Tim Warner, Department of Geology and Geography, West Virginia University, 2006-2007 (Joint project with Utah State University and NRCS).

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DYNAMIC (USE-DEPENDENT) SOIL PROPERTIES

Linking Experimental and Soil Spectral Sensing for Prediction of Soil Carbon Pools and Carbon Sequestration at Landscape Scales-Phase 1
Drs. Sabine Grunwald and James Sickman, Soil and Water Science Department, University of Florida, 2005-2006.

Linking Experimental and Soil Spectral Sensing for Prediction of Soil Carbon Pools and Carbon Sequestration at Landscape Scales-Phase 2
Drs. Sabine Grunwald, James Sickman, and Nicholas Comerford, Soil and Water Science Department, University of Florida, 2006-2007.

National Soil Quality Assessment Project-A component of the Conservation Effects Assessment Project
Dr. Paul Mueller, Crop Science Department, North Carolina State University, 2006-2008 (Joint project with West Virginia University, NRCS-Soil Quality Team, and NGDC).

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HYDROPEDOLOGY

Field and Laboratory Investigation of Infiltration on Different Geomorphic Surfaces in a Watershed Under Different Land Uses
Dr. Thanos Papanicolaou, Department of Civil and Environmental Engineering, University of Iowa and Dr. Lee Burras, Department of Agronomy, Iowa State University, 2006-2008.

Order 1 Soil Survey, Landscape Attributes, Management-Dependent Soil Properties, and Simulation Modeling to Predict Seasonal Soil Saturation of Plinthic Soils in the Southeastern Coastal Plain
Dr. Joey Shaw, Department of Agronomy and Soils, Auburn University, 2006-2008 (Joint project with University of Georgia).

Order 1 Soil Survey, Landscape Attributes, Management-Dependent Soil Properties, and Simulation Modeling to Predict Seasonal Soil Saturation of Plinthic Soils in the Southeastern Coastal Plain
Dr. Larry West, Department of Crop and Soil Sciences, University of Georgia, 2006-2008 (Joint project with Auburn University).

Seasonal Infiltration and Subsurface Water Dynamics across Benchmark Soil Catenas in Eastern West Virgina
Dr. Jim Thompson, Division of Plant and Soil Sciences, West Virginia University, 2005-2008.
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USE AND VISUALIZATION OF SOIL DATA

Assembling University Soil Characterization Data for the National Soil Characterization Database
University of Idaho.

Conservation Simulation and Visualization
Dr. Trevor Harris, Department of Geology and Geography, West Virginia University, 2005-2006.

Providing Data and Data Delivery Protocols to the Risk Management Agency
Dr. Jim Thompson, Division of Plant and Soil Sciences, West Virginia University, 2006-2008 (Joint project with NGDC, funded by the Risk Management Agency).

Scientific Visualization of the Genesis and Hydrology of a Loess Landscape in Southeastern Minnesota
Dr. Jay Bell, Department of Soil, Water, and Climate, University of Minnesota, 2006-2008.

Soil Survey Reports - Scanning Project
Dr. Jim Thompson, Division of Plant and Soil Sciences, West Virginia University, 2006-2008 (Joint project with NGDC).

Web-based National Land Resource Region (LRR) and Major Land Resource Area (MLRA) Interactive/Multimedia Tool to Complement the 2006 Agricultural Handbook 296 Publication
Dr. Doug Miller, Center for Environmental Informatics, Penn State University, 2006-2007.

Web-based National Soil Series Extent Mapping using Soil Data Mart, Soil Classification File, and Official Series Description Data Sources
Dr. Doug Miller, Center for Environmental Informatics, Penn State University, 2005-2006 (Joint project with NGDC).
Top

NGDC Activities
National Geospatial Development Center

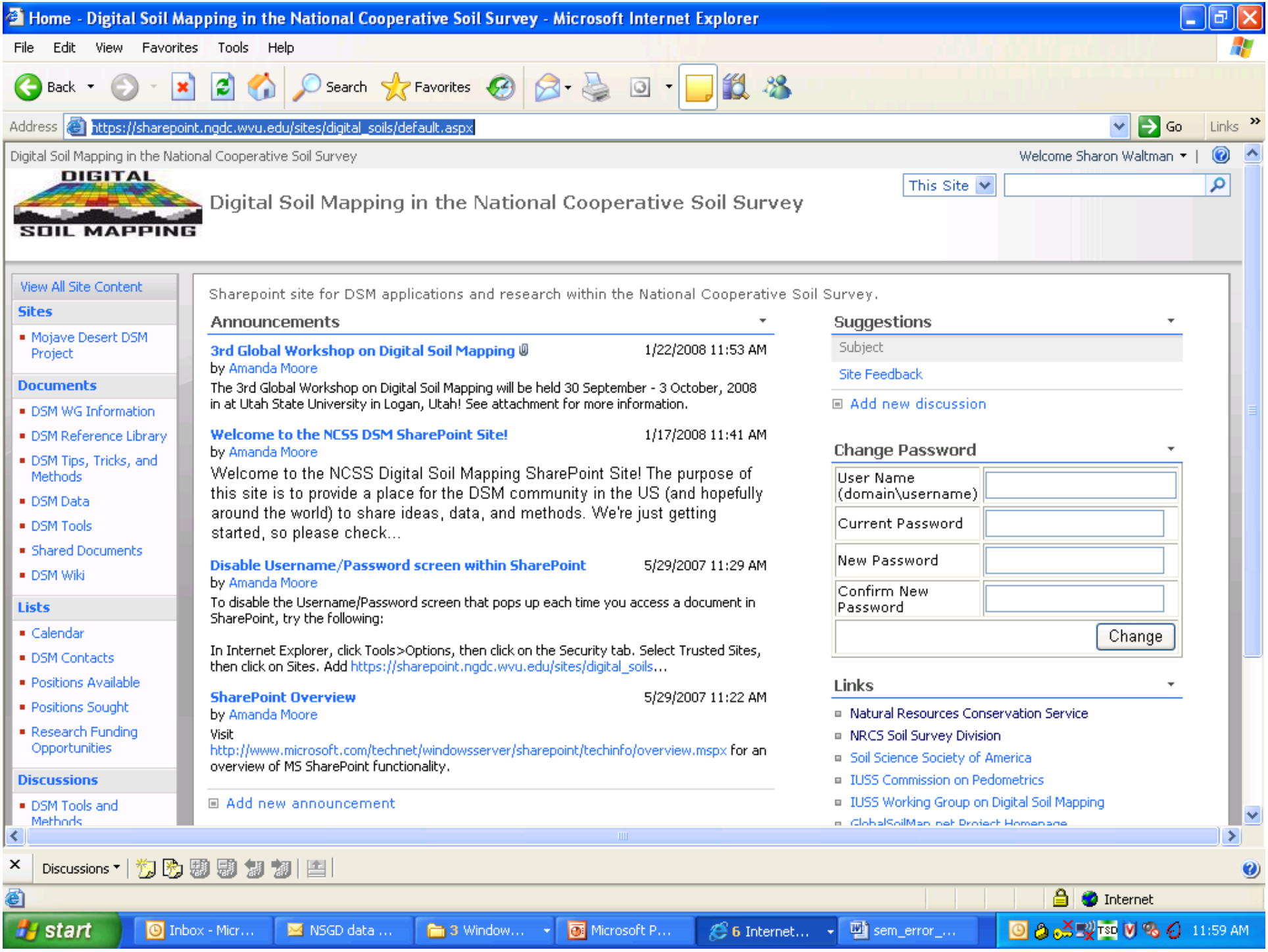
Projects (selected)

Research – http://www.ngdc.wvu.edu/research/CESU

North American Soil Characteristics Database (NOAM-SOIL)
(DOE funded Oakridge/Penn State/Colorado State/U of Wisconsin/NRCS-NGDC) 2008-2009

Global Soil Map – Gates Foundation Proposal
(Agriculture Canada Collaboration with ND/Manitoba)

Digital Soil Mapping SharePoint Site
https://sharepoint.ngdc.wvu.edu/sites/digital_soils/default.aspx
Amanda.moore@wv.usda.gov to request access


Home - Digital Soil Mapping in the National Cooperative Soil Survey - Microsoft Internet Explorer
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Back Search Favorites
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Digital Soil Mapping in the National Cooperative Soil Survey
Welcome Sharon Waltman
DIGITAL SOIL MAPPING
Digital Soil Mapping in the National Cooperative Soil Survey
This Site
View All Site Content
Sites
Mojave Desert DSM Project
Documents
DSM WG Information
DSM Reference Library
DSM Tips, Tricks, and Methods
DSM Data
DSM Tools
Shared Documents
DSM Wiki
Lists
Calendar
DSM Contacts
Positions Available
Positions Sought
Research Funding Opportunities
Discussions
DSM Tools and Methods
Sharepoint site for DSM applications and research within the National Cooperative Soil Survey.
Announcements
3rd Global Workshop on Digital Soil Mapping 1/22/2008 11:53 AM
by Amanda Moore
The 3rd Global Workshop on Digital Soil Mapping will be held 30 September - 3 October, 2008 in at Utah State University in Logan, Utah! See attachment for more information.
Welcome to the NCSS DSM SharePoint Site! 1/17/2008 11:41 AM
by Amanda Moore
Welcome to the NCSS Digital Soil Mapping SharePoint Site! The purpose of this site is to provide a place for the DSM community in the US (and hopefully around the world) to share ideas, data, and methods. We're just getting started, so please check...
Disable Username/Password screen within SharePoint 5/29/2007 11:29 AM
by Amanda Moore
To disable the Username/Password screen that pops up each time you access a document in SharePoint, try the following:
In Internet Explorer, click Tools>Options, then click on the Security tab. Select Trusted Sites, then click on Sites. Add https://sharepoint.ngdc.wvu.edu/sites/digital_soils...
SharePoint Overview 5/29/2007 11:22 AM
by Amanda Moore
Visit http://www.microsoft.com/technet/windowsserver/sharepoint/techinfo/overview.mspx for an overview of MS SharePoint functionality.
Add new announcement
Suggestions
Subject
Site Feedback
Add new discussion
Change Password
User Name (domain\username)
Current Password
New Password
Confirm New Password
Change
Links
Natural Resources Conservation Service
NRCS Soil Survey Division
Soil Science Society of America
IUSS Commission on Pedometrics
IUSS Working Group on Digital Soil Mapping
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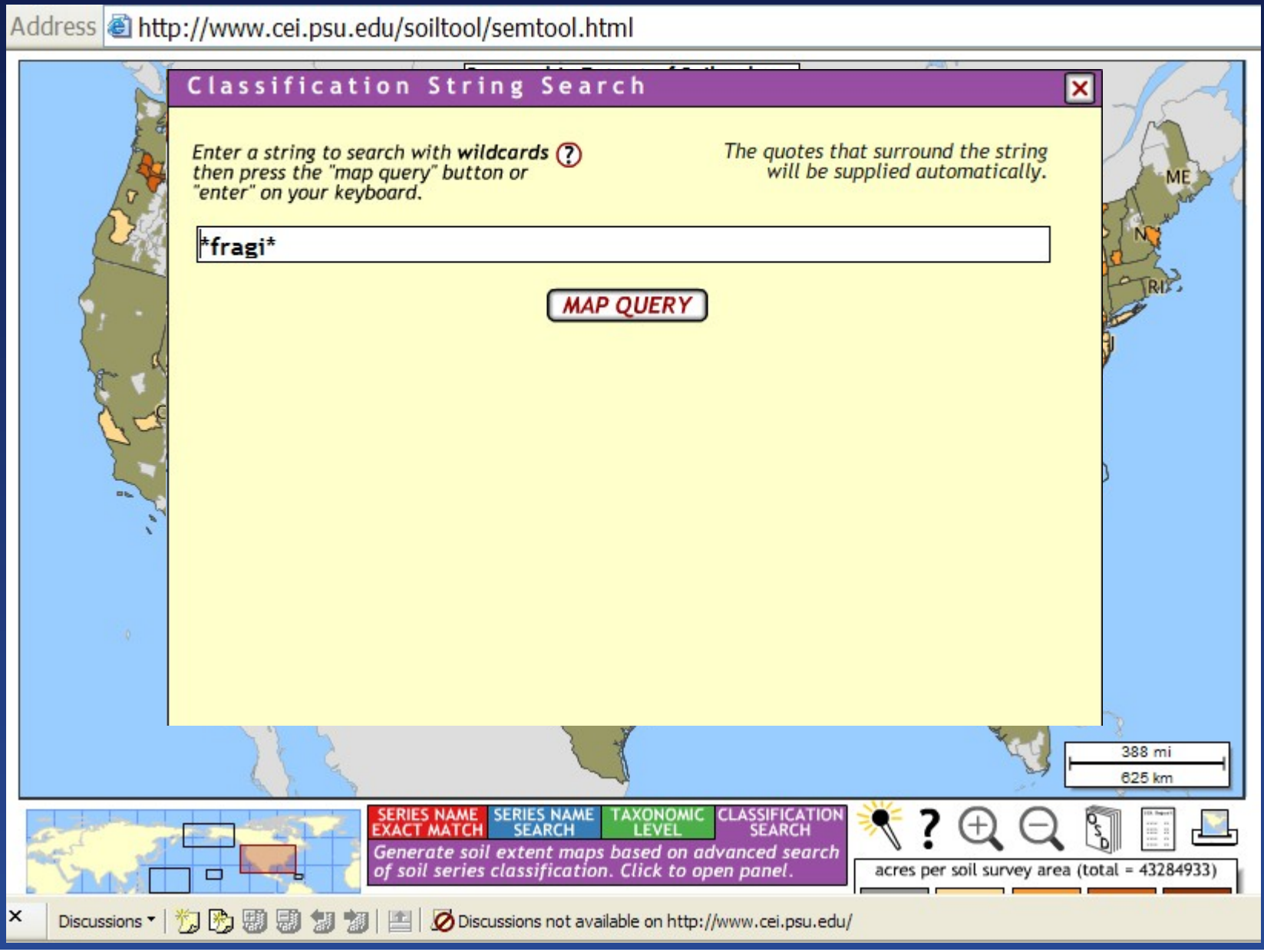
Address
http://www.cei.psu.edu/soiltool/semtool.html
Classification String Search
Enter a string to search with wildcards
then press the "map query" button or
"enter" on your keyboard.
The quotes that surround the string
will be supplied automatically.
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ME
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625 km
SERIES NAME EXACT MATCH
SERIES NAME SEARCH
TAXONOMIC LEVEL
CLASSIFICATION SEARCH
Generate soil extent maps based on advanced search of soil series classification. Click to open panel.
acres per soil survey area (total = 43284933)
Discussions
Discussions not available on http://www.cei.psu.edu/

- END

NSGD

Transactional National Soil Geospatial Database

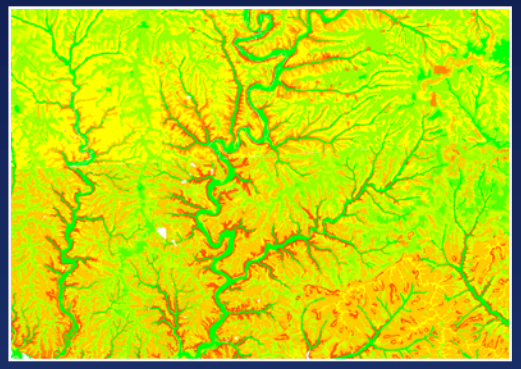
with

Check Out/Check In Functionality

Status

SharePoint Site https://ncgc.sc.egov.usda.gov/nsgd/default.aspx

Introduction



- Laws of Krynine
  - Let us see things in their proper places
  - Let us know what we are talking about
  - Let us think straight
  - Let us not fool ourselves

P.D. Krynine, known as the Father of Sedimentology, practiced Sedimentary Petrology in the 1930's - 1950's

National Soil Geospatial Database (NSGD)

Definition

- A national collection of soil geographic vector data (points, lines, polygons) with associated attributes and related information (like SC File, OSED, expert rule sets, etc.) needed to conduct soil survey operations (includes QC/QA) and that meets most users' requirements.
- Connection and processes between spatial and tabular data are transparent to the user and allow the user to obtain timely, consistent, accurate, and reliable soil geographic data products.

National Soil Geospatial Database (NSGD)

Timeline:

Business Requirements 3/2008

New Topology Standard Proposal
(NCGC, NGDC, NSSC, DU's) 3/2008

New Topology Standard/Business Requirements
finalized by SBAAG and sent forward 7/2008

SBAAG Ad Hoc Team (Topology and Edit Work Flow) 4-12/2008

Test proposals to:

-Repair Topology (Caryl starts 7/21)

-Pilot test sites begin testing 8-12/2008

-Document Edit Work Flows

-Determine extent of geometry edit groups (MLRA SSA/MO)
also basic unit of management (polygon,quad,ssa, etc.)

-Establish NSGD hw/sw/network connections at NCGC

-Determine process for publishing traditional SSA to SDM

National Soil Geospatial Database (NSGD)

Timeline:

SBAAG Ad Hoc Team Report to MO Leaders 8/2008
NSGD Communication with MO/SO (NB –freeze period?)
MO Leader reps take lead for NSSH edits
Functional Requirements (first draft) 10/2008
Architecture Document (first draft) 10/2008

Ad Hoc Team Final Report 1/2009
(includes pilot results analysis)
NASIS 6.0 Complete 1/2009

National Soil Geospatial Database (NSGD)

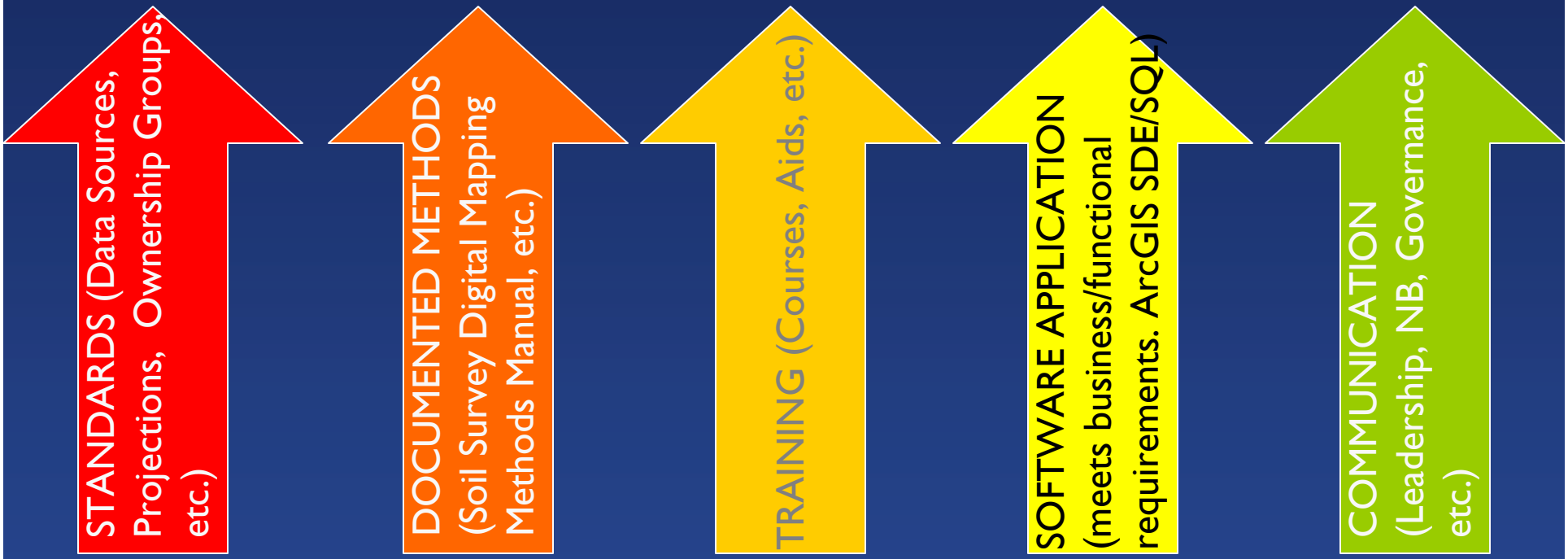
Timeline:

Geospatial Integration of NASIS	
Business Analysis begins (6.0 +)	3/2009
Create Transact-NSGD for DU field use	4/2009
Topology Repair by DU's	5-7/2009
-Nation	
Final architecture document	8/2009
NSGD-spatial only established @ EDC KC	4/2010

Post NASIS 6.0 steps…

- Key Issues
  - Identify all things relating to geospatial attributes in NASIS 6.0 and transfer to GIS side of house
  - Identify functional group roles and membership
  - Associate functional groups with geographic features

NSGD
National Soil Geospatial Database
Requirements for Successful Implementation



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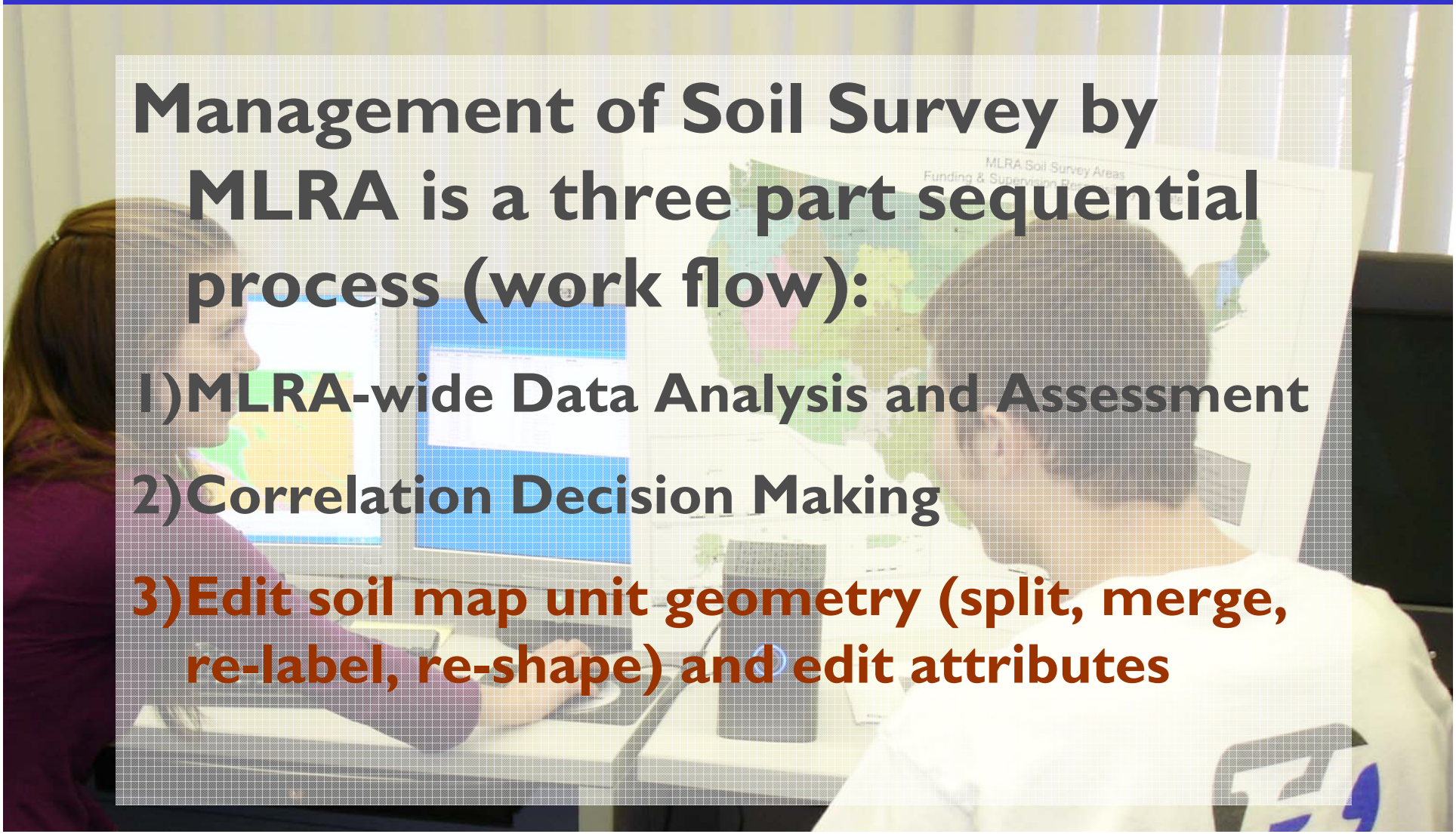
Spatial and Tabular Data Flow

(Analyzing the start of geospatial integration of NASIS – 6.0+)

Proposed Pathway from
Transactional to Published

(soil geometry editing data flow)



Management of Soil Survey by MLRA is a three part sequential process (work flow):

1)MLRA-wide Data Analysis and Assessment

2)Correlation Decision Making

3)Edit soil map unit geometry (split, merge, re-label, re-shape) and edit attributes

Management of Soil Survey by MLRA Course

- Marc Crouch is point of contact
- Roles/Responsibility and Soil Correlation
- Evaluation of historic soil survey
- Prioritization and planning
  - MLRA (long range) work plan (e.g. MLRA 105)
  - Project (mid range) plan (MLRA SSA 10-10)
  - Annual work plan (plan of operations)

Management of Soil Survey by MLRA Course

- Project Management
- Role of Benchmark Soils
- Assessment/Evaluation/Validation
  - geospatial and attribute
- Correlation Decision Making
- Soil Map Unit geometry/attribute Editing
- Certification and publication

END